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SOCIAL SCIENCES

VOL. 8, No. 12 DECEMBER 1954

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CHRONICLE OF THE WORLD HEALTH ORGANIZATION

YELLOW FEVER IN AFRICA
AFRICAN CONFERENCE ON ONCHOCERCIASIS
TREPONEMATOSES CONTROL IN THAILAND

REPORTS OF EXPERT GROUPS
NOTES AND NEWS

WORLD HEALTH ORGANIZATION
PALAIS DES NATIONS
GENEVA

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The World Health Organization (WHO) is a specialized agency of the United Nations and represents the culmination of efforts to establish a single intergovernmental health agency. As such, it inherits the functions of antecedent organizations such as the Office International d'Hygiène Publique, the Health Organization of the League of Nations, and the Health Division of UNRRA.

WHO had its origin in the proposal made at the United Nations Conference held in San Francisco in 1945 that a specialized agency be created to deal with all matters relating to health. In 1946, representatives of 61 governments met at the International Health Conference, New York, drafted and signed the WHO Constitution, and established an Interim Commission to serve until the Constitution could be ratified by 26 Member States of the United Nations. The Constitution came into force on 7 April 1948, the First World Health Assembly met in Geneva in June 1948, and on 1 September 1948 the permanent Organization was established.

The work of the Organization is carried out by three organs : the World Health Assembly, the supreme authority, to which all Member States send delegates ; the Executive Board, the executive organ of the Health Assembly, consisting of 18 persons designated by as many Member States ; and a Secretariat under the Director-General.

The scope of WHO's interests and activities exceeds that of any previous international health organization and includes, in addition to major projects relating to malaria, tuberculosis, venereal diseases and treponematoses, maternal and child health, nutrition, and environmental sanitation, special programmes on public-health administration, epidemic diseases, mental health, professional and technical training, and other public-health subjects. It is also continuing work begun by earlier organizations on biological standardization, unification of pharmacopoeias, addiction-producing drugs, health statistics, international sanitary regulations, and the collection and dissemination of technical information, including epidemiological statistics.

* * *

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Subscription for 1955 . .	**17/6**	**$2.50**	Sw. fr. **10.—**
Price per copy	**1/9**	**$0.25**	Sw. fr. **1.—**

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SCHEDULE OF MEETINGS

1954	
6-11 December	**Joint WHO/FAO Expert Committee on Meat Hygiene, first session, Geneva** The agenda for this meeting includes subjects such as the epidemiology of meat-borne diseases, abattoir hygiene, meat inspection, laboratory tests in meat hygiene, the training of meat inspectors, and the control of food handlers and meat markets.
1955	
10 January	**Executive Board, Standing Committee on Administration and Finance, Geneva**
18 January	**Executive Board, fifteenth session, Geneva**

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PRINTED IN SWITZERLAND

YELLOW FEVER IN AFRICA

Knowledge of yellow fever has been steadily increasing since the turn of the twentieth century, when Dr. Walter Reed and his associates, acting on a theory of Dr. Carlos Finlay, demonstrated that the disease is propagated by mosquitos. This discovery has made possible the virtual eradication from many countries of a disease which for more than two hundred years was one of the major plagues. But yellow fever is still a serious health problem in some parts of the world—Africa and the Americas, particularly—and there is a constant fear that, without adequate control measures and the enforcement of certain quarantine regulations, the disease might spread to the East, where, among a non-immune population, it could have a devastating effect.

Yellow fever has always been a concern of the World Health Organization. The Organization collects and disseminates epidemiological information on outbreaks of the disease, defines and delineates yellow-fever endemic and receptive zones, approves vaccines for use in immunizations recorded in international vaccination certificates, and promotes and aids study of yellow fever. As one of the quarantinable diseases, yellow fever is the subject of provisions in the International Sanitary Regulations (WHO Regulations No. 2). In addition, WHO has, since 1950, participated in insect-control programmes in the Americas, where *Aëdes-aegypti*-eradication efforts have been in progress for many years, with aid from the Rockefeller Foundation and the Pan American Sanitary Bureau, now WHO Regional Office for the Americas.

In 1953, special attention was focused on the problem of yellow fever in Africa through the sponsorship of a seminar held in Kampala, Uganda. This seminar provided an opportunity for a general review of current knowledge of yellow fever and its control. Some of the papers presented at the seminar have now been published in the *Bulletin of the World Health Organization*; [1] others, especially those on the subject of yellow fever vaccination, are to appear in a WHO monograph now in preparation.

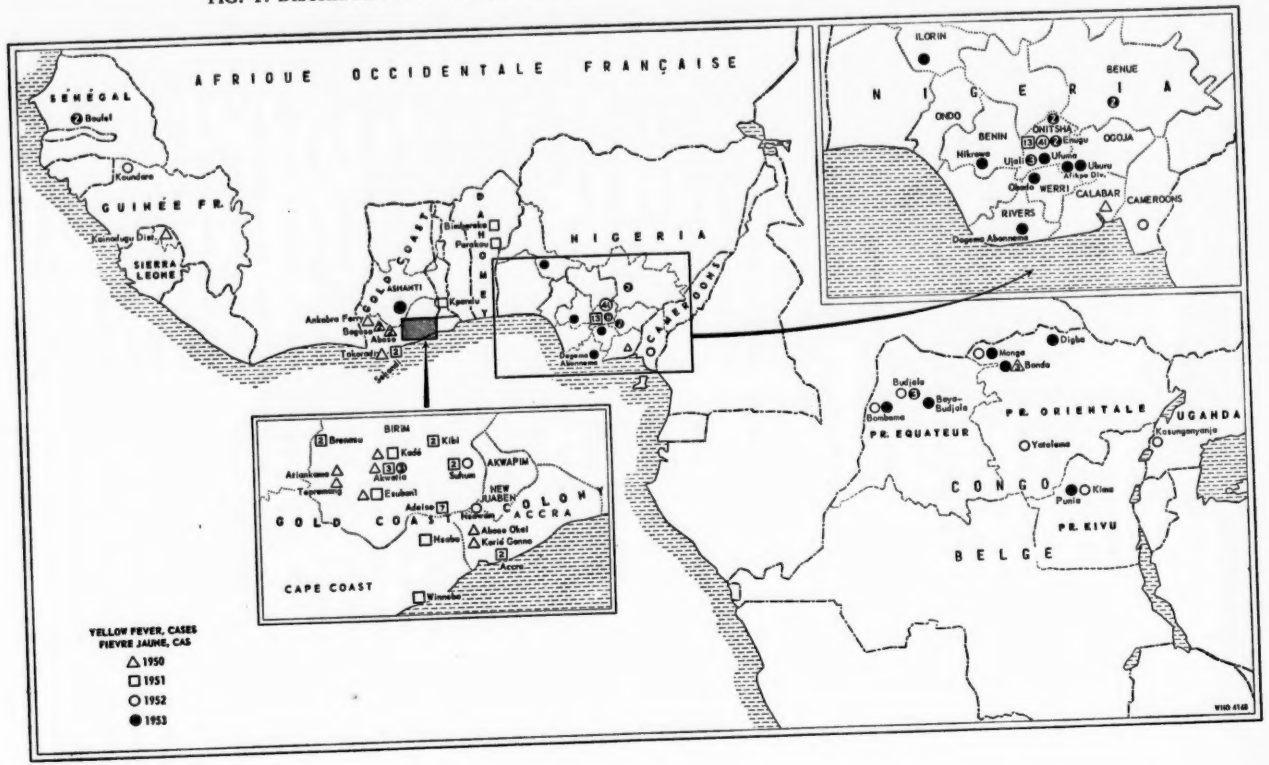
Epidemiology

Until 1932 it was believed that man was the only susceptible vertebrate host of yellow fever and that the mosquito *Aëdes aegypti* was the sole vector. Control efforts were concentrated on the elimination of the vector, and many urban epidemics were checked by this means. Eradication of *A. aegypti* became the goal of systematic campaigns in the Americas, and these campaigns met with considerable success in cities in the known endemic regions. However, complete eradication of the disease from the continent was not achieved, partly because of an epidemiological factor which had not been previously recognized. An outbreak of yellow fever in an area in Brazil in which there were no *A. aegypti* led Soper and his colleagues to the discovery of jungle yellow fever, a form which can persist in sparsely populated, or even uninhabited, forest areas; be maintained in animals other than man; and be transmitted by vectors other than *A. aegypti*.

Concurrent advances in knowledge of yellow fever were being made in Africa. In 1927 it was demonstrated that the rhesus monkey is highly susceptible to infection with yellow fever, and this finding of a satisfactory experimental animal opened the door to

[1] *Bull. Wld Hlth Org.* 1954, **11**, 315-503. See particularly article by A. F. Mahaffy, "The Yellow Fever Situation in Africa", from which much of the information in the present review is drawn.

FIG. 1. DISTRIBUTION OF YELLOW FEVER CASES NOTIFIED IN AFRICA FROM 1950 TO 1953



important laboratory studies. Among the significant results of these studies were the elaboration of a sero-protection test which made possible the demonstration of the life-long immunity possessed by an individual who has receovered from yellow fever, and the development of a vaccine which has since effectively immunized millions of persons against the disease.

The sero-protection test became increasingly useful when it began to be employed in immunity surveys to determine the extent to which areas had been infected by yellow fever and to obtain a more accurate appraisal of the actual incidence of the disease. In early immunity surveys in West Africa, the tests were made in rhesus monkeys; and this necessarily limited the extent to which they could be carried out. With the development of a similar test using the white mouse as the experimental animal, large-scale studies became possible.

Extensive immunity surveys, in some of which WHO aid was given, have helped to delineate the areas in Africa where yellow fever virus has been present, including areas in which clinical cases have not been recognized.

Much valuable information on the epidemiological nature of yellow fever in Africa has been gained through investigations conducted by the Yellow Fever Institute at Entebbe, Uganda. It has been revealed by these investigations, for example, that, in addition to *A. aegypti*, *A. simpsoni* and *A. africanus* are responsible for the transmission of the virus to man and to monkeys, and that there exists in Africa a jungle yellow fever basically the same as that found in the Western hemisphere.

A recent study of the prevalence and distribution of yellow fever in Africa since about 1940 [2] indicates that classic yellow fever of the epidemic, urban type, transmitted by *A. aegypti*, has, to all intents and purposes, been non-existent in Africa for several years, the majority of the rare cases found occurring in rural areas in or near the forest. The data presented are based on notifications of cases and deaths in various territories and on immunity tests carried out in Africa in recent years, particularly those effected under the auspices of WHO from 1951 to 1953. It must be noted, however, that the results of these immunity tests are difficult to evaluate in some areas since the surveys may have included some vaccinated subjects. Figures 1-3 illustrate the distribution of cases of yellow fever from 1940 to 1953 and the results of sera-protection tests carried out in surveys from 1951 to 1953.

In summary, yellow fever presents two different epidemiological pictures : one is a disease of man, occurring in urban centres and transmitted by the domestic mosquito *A. aegypti*; the other is primarily a disease of animals, found in association with forests and transmitted by forest-dwelling vectors. The disease itself, however, is the same, regardless of the environment in which it occurs. It is now believed that the original source of infection might have been the jungle, and that it was from there that yellow fever invaded, and still invades, urban centres from time to time. This means that the permanent reservoir of virus which exists in forest animals represents a constant potential threat of infection, whether or not the disease has been successfully eliminated from urban centres.

Although much is now known concerning the epidemiology of yellow fever, there is still more to be learned, particularly with regard to the possibilities of other vectors and other animal hosts, reservoirs of the disease.

Control

The object of epidemiological study of yellow fever is, of course, the control of the

[2] See Bonnel, P. H. & Deutschman, Z. (1954) " La fièvre jaune en Afrique au cours des années récentes ", in *Bull. Wld Hlth Org.* **11**, 325.

FIG. 2. DISTRIBUTION, BY PLACES, OF YELLOW FEVER CASES NOTIFIED IN AFRICA FROM 1940 TO 1949

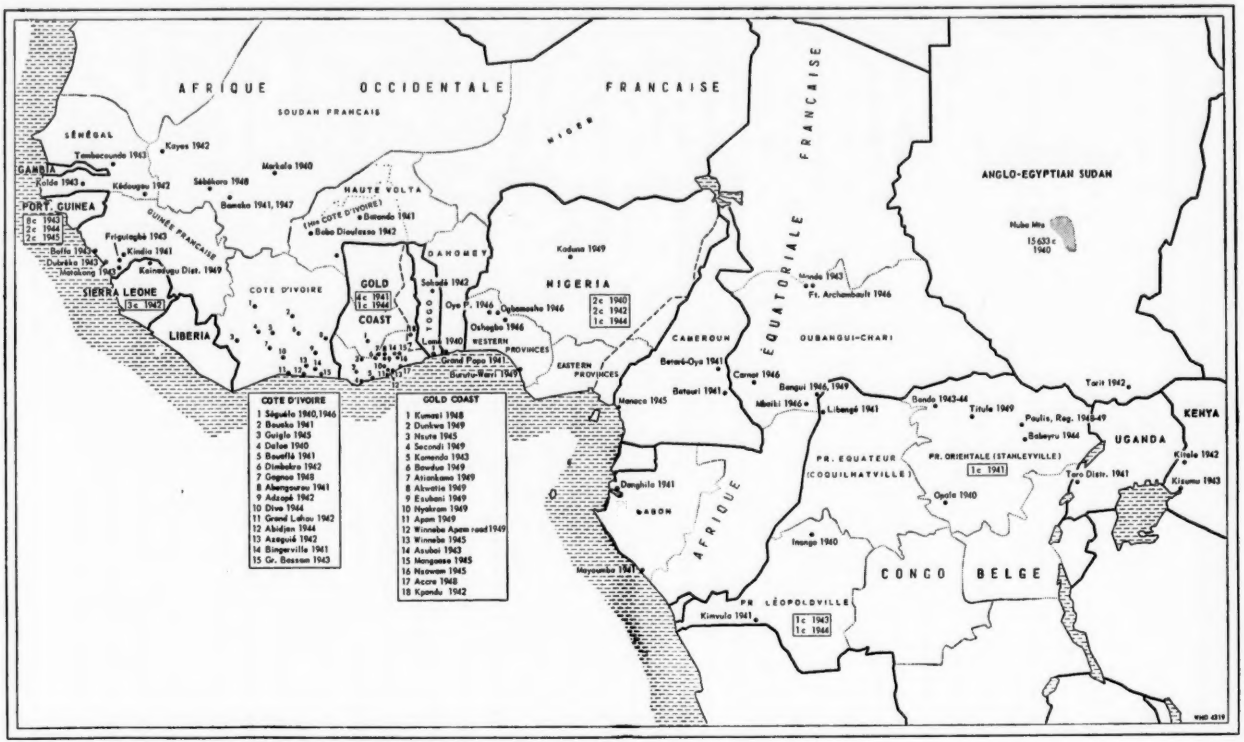
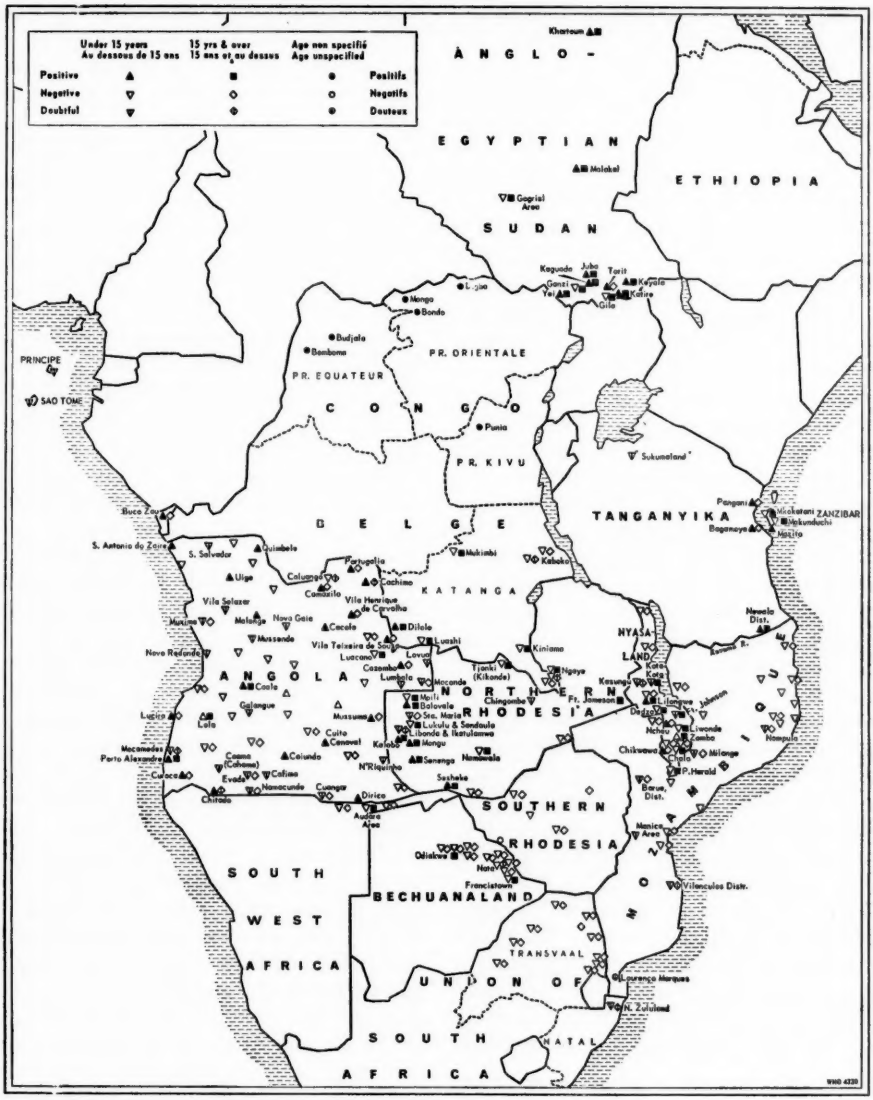


FIG. 3. YELLOW FEVER IMMUNITY TESTS, CARRIED OUT WITH HUMAN SERA, FROM 1951 TO 1953



disease and the prevention of its spread to non-infected areas. *A. aegypti*-transmitted yellow fever is potentially the most important factor in the spread of the disease. The method of control of this type of yellow fever—destruction of the vector—has not changed since it was first recommended by Dr. Reed ; but the means of eliminating *A. aegypti* have greatly improved. In early control efforts (e.g., in Brazil in the early 1930's), kerosene was used. Since 1947, DDT has been employed in *A. aegypti*-eradication schemes with great success in most countries in South and Central America, where the spraying has often served the dual purpose of eliminating vectors of malaria as well.

Jungle, or sylvan, yellow fever requires other methods, since control of the forest vectors or of the animal hosts is not possible at present. By means of vaccination, it is possible to protect the human populations exposed to the forest infection. It is now officially recognized that this vaccination gives immunity for six years, and there is evidence that the immunity may be of longer duration, lasting, perhaps, throughout life, as does the immunity gained by a non-fatal attack of the disease. Yellow fever inoculation is as simple as vaccination against smallpox and has, in fact, often been combined with the latter in immunization campaigns in Africa. Mass vaccination of the population in endemic yellow fever areas is advisable, and has been undertaken in most territories of western and central Africa.

Successful control of yellow fever has been achieved in parts of Africa. A notable illustration of the efficacy of prophylaxis is the experience in the Cape Verde Peninsula.[3] Following an epidemic of yellow fever in 1927 (94 cases and 66 deaths), an intensive campaign against the vector, *A. aegypti*, was initiated: precise regulations were established, a programme of environmental sanitation undertaken, and preventive measures adopted, including a weekly search for, and destruction of, temporary larval breeding-places, surveillance and treatment with insecticides of permanent breeding-places, and the enforcement of special protective measures in the Dakar-Yoff airport sector and in the sanitary zone of the port of Dakar. In 1934 vaccination against yellow fever began and, with the introduction in 1939 of the scarification method, was instituted on a large scale. In fourteen years, the 200,000 inhabitants of the Cape Verde Peninsula received 404,226 yellow fever vaccinations, either simple or combined with smallpox vaccination. Since the beginning of mass vaccination, the immunity conferred by this method has varied between 100% one year after vaccination and 80% seven years after. No case of yellow fever has been registered in the Peninsula since the 1927 epidemic, and the disease is not endemic there—a fact which bears witness to the effectiveness of adequate preventive measures.

Despite the advances in methods of controlling yellow fever, some quarantine measures are still considered necessary. It is for this reason that yellow fever is one of the most important diseases in the International Sanitary Regulations. However, under conditions such as exist in Africa, quarantine is inadequate as a method of control, since most of the cases actually occurring go unrecognized and unnotified ; and, obviously, quarantine measures cannot be applied against a disease if its presence is not noted. The practical solution to the problem of yellow fever in Africa, as in America, therefore lies in the eradication of the urban vector and in the mass immunization of the population at risk.

[3] See Breteau, H. (1954) " La fièvre jaune en Afrique-Occidentale Française ; Un aspect de la médecine préventive massive ", in *Bull. Wld Hlth Org.* 11, 453.

AFRICAN CONFERENCE ON ONCHOCERCIASIS

Onchocerciasis, the filarial disease transmitted by the bite of the fly *Simulium*, is increasingly drawing the attention of WHO. Early in 1954, an expert committee reviewed present knowledge of the disease, discussed methods for its control, and drew up standardized procedures for epidemiological surveys (see page 353) ; in October, a WHO-sponsored conference on onchocerciasis brought together, in Leopoldville (Belgian Congo), 30 delegates from Africa, the Americas, and Europe. These meetings marked an important advance in the struggle against a disease which, especially because of the blindness which often results from it, has serious social and economic consequences in areas where it is widespread.

Discussions at the African conference revealed the extent of the problem in that continent, furnished much technical information concerning the manifestations and treatment of the disease, and underlined the need for large-scale, co-operative efforts to combat it. It was reported, for example, that :

... in certain places in Nigeria, 77% of those afflicted with onchocerciasis have palpable nodules, and 44% have ocular complications ;

... in Northern Nigeria, the disease has caused yearly economic losses amounting to £120,000 ;

... in one locality in Chad, French Equatorial Africa, an exodus of the population because of the disease resulted in a population decrease of from 40,000 to 6,000 ;

... in Uganda, people were bitten as frequently as 200 times an hour by simuliids and literally fled from certain areas, returning only after insecticides had been used ;

... in some regions, onchocerciasis has been responsible for population migrations as great as those caused by sleeping sickness.

Onchocerciasis does not appear to be at all prevalent in Rhodesia, Basutoland, Somalia, or Swaziland; Madagascar seems to be completely free of the disease. It has been noted in the Sudan that fishermen living near rivers are more frequently stricken than other population-groups, and the disease is sometimes referred to as " river blindness ". One study suggests that the disease extends farther south on the continent of Africa than had been thought. There is a great need to map in detail the principal foci of onchocerciasis in Africa so that measures may be taken to prevent its introduction into territories which are as yet relatively untouched.

An interesting point was raised at the conference concerning the prevalence of onchocerciasis in regions which have been deforested and cleared to make way for coffee or rubber plantations, especially in regard to imported labourers. Alternating coffee bushes with trees, to give them shade, creates a freshness of atmosphere that is most conducive to both the activity and the settling of *Simulii*, vectors of the parasite *Onchocerca*.

Some of the papers presented at the conference drew attention to a possible relationship between nutrition and the ocular lesions associated with *Onchocerca* infections: people who have a balanced diet seem to be less subject to these complications. Malnutrition and the resulting avitaminoses were considered in connexion with so-called " night blindness ", which is more frequently observed in onchocerciasis patients at the end of the dry season. There was general agreement that certain native products such as palm oil and millet beer could, to some extent, make up for a lack of other sources of vitamins A and B. It was suggested that general improvement in living conditions would do much to increase the resistance of those attacked by *Onchocerca* infection.

Attention was focused on the apparent analogy between the ocular lesions caused by onchocerciasis and those caused by other diseases such as leprosy, sleeping sickness, malaria, and syphilis, emphasizing the necessity for making a precise differential diagnosis, especially in a continent where the inhabitants are often suffering from several diseases at a time. It was pointed out, too, that simuliids are often found in the same areas as tse-tse flies, which are the vectors of sleeping sickness.

The parasite *Onchocerca volvulus* and the vector *Simulium damnosum* were discussed in detail. The life of the adult parasite has been estimated by scientists to be from 15 to 20 years, from the moment it is introduced into the skin of the human host to the moment it dies.

The flight range of the vectors is difficult to determine. Some authorities have given figures of from 11 to 20 km; but marked flies have been found as far as 70 km from their resting-place. However, it is possible that they were transported this distance by vehicles, which points out still another potential source of danger in the transmission of the disease.

The question of possible animal reservoirs of *Onchocerca* infection was considered. There is evidence that simuliids attack cattle and other domestic animals, but further studies on this subject are required before any conclusions can be reached.

Control was discussed from the viewpoints of vector destruction, mass treatment, and a combination of the two. Control campaigns may be costly ; but, in general, efforts directed only against the larvae of the flies are much less expensive (in a proportion of 1 to 300) than large-scale operations against the adult insect, which require much more complicated means, such as helicopters for aerial spraying. There is hope that larvicidal measures may suffice to eliminate the disease, at least from certain regions. Noteworthy progress has been realized in some territories of Africa—e.g., Belgian Congo, Kenya, and Uganda—particularly in the control of the vector.

Advances in therapy are also encouraging. Important developments are anticipated in the study of the ophthalmological aspects of onchocerciasis, and it is believed that these may lead to more effective control of the infection, especially of the ocular manifestations which can result in blindness.

Participants in the African conference laid plans for inter-governmental action against onchocerciasis, made proposals for international research, and suggested that special training courses and fellowships be arranged for study of the disease. A plea was made for large-scale efforts for the prevention and the early treatment of the disease, with possible assistance to governments from international agencies, so that thousands of African children may escape blindness.

TREPONEMATOSES CONTROL IN THAILAND *

Thailand has an area of 511,937 km² and a population of about 17.5 million. The climate is largely tropical. Approximately 85% of the population are engaged in agriculture, particularly in rice cultivation. In rural areas conditions are very primitive and communications rudimentary.

BEGINNING AND OBJECTIVES OF THE CAMPAIGN

The first discussions concerning the treponematoses-control programme now in progress in Thailand took place towards the end of 1949, when, at the request of the Government, a WHO consultant made a survey of the problem. At the same time, teams were sent to some of the provinces. As a result of this preliminary survey, the Ministry of Public Health submitted proposals for a programme which was subsequently approved by WHO on 21 April 1950. UNICEF agreed to allocate funds for equipment and supplies, and operations began in May 1950.

It was soon apparent that the actual prevalence of yaws was much greater than had been originally estimated, the average being 13%, and even higher in some areas. It was found that about 60% of the inhabitants lived in yaws-infected areas, and that there were approximately 1.4 million cases of the disease.

The Government therefore proposed an expansion of the programme. WHO's technical approval was obtained, and UNICEF allocated additional funds. WHO agreed to provide the international consultants, and UNICEF the equipment and supplies.

The objectives of the campaign were: (1) to carry out a systematic campaign against yaws in all infected areas (i.e., up to forty provinces, with a total population of about 10.5 million); (2) to examine and re-examine the population in these areas, to treat all persons suffering from yaws, and to administer prophylaxis to all their contacts; (3) to reduce the reservoir of infection to a level at which it would no longer be a public-health problem and could be controlled by the rural health authorities; (4) to train local personnel in methods of diagnosis, treatment, and control of yaws, in the administration of a mass campaign, and in general public-health measures directed towards the improvement of rural health standards; and (5) to integrate the control of yaws into the permanent public-health services of the country when the mass-campaign stage had been consolidated, planning this integration so that it would meet the local conditions and permit the maintenance of control without further international aid.

TRAINING OF PERSONNEL

To train local personnel for working with international team members and for later replacing them, a basic course was organized for sanitary inspectors, nurses, and other personnel with the adequate prerequisite education. This training consists of two weeks of theory and classroom demonstrations followed by six weeks of field demonstrations, including house-to-house surveys, diagnosis, treatment, resurveys, and the keeping of case cards, records, and reports. After this, the trainees are moved to an area where they work for eight weeks under the supervision of more experienced field work-

* From a report prepared by Dr. E. I. Grin, WHO Senior Adviser for the project from January 1953 to January 1954. Additional information has been included to bring it up to date. The project is to continue to the end of 1956.

ers. Finally, following assessment of their work by the instructors, they are assigned as team members.

Short training courses have been given in a number of provinces to prepare sanitary inspectors from health centres for the consolidation phase of the yaws programme. In addition, special courses have been arranged for public-health nurses, partly in connexion with a WHO/Government-sponsored training course for nurse-midwives. The purpose is to prepare these nurses for field activities related to the yaws-control campaign, such as search for contacts, follow-up of patients who have received treatment, and collaboration with the teams in mass campaigns by visiting homes and schools, giving advice to mothers, and aiding in health education. By December 1953, 15 public-health nurses were ready to take part in the campaign.

A training laboratory was established at Rajburi, the project headquarters, with equipment supplied by UNICEF. Here local personnel are trained in serological methods. This laboratory is run by a WHO serologist, a national serologist, and a national laboratory technician. In 1950, two Thai doctors received training ; in 1950 and 1951, nine sanitary inspectors were trained for laboratory work.

Other laboratories have subsequently been established in other towns—Nakornrajsima, Amnachaeron, Udornthani, and Songkla. In October 1953, a trial, portable, field laboratory was set up in Surindr ; further utilization of such laboratories is envisaged.

The serological techniques used and taught in the campaign laboratories are the VDRL slide flocculation test and the standard Kahn test. In addition, Meinicke, Kline, and complement-fixation tests have been carried out in one or more of the laboratories. Demonstrations and training in the estimation of penicillin blood levels have also been given.

CAMPAIGN ACTIVITIES

The teams, composed of five or six persons, travel in jeeps and stay overnight in the village or hamlet in which work is to begin on the following day. The team leader examines the inhabitants and makes the diagnosis. Treatment is administered to those found to be infected with yaws and to their contacts. All persons living in the same house as a patient with infectious yaws are considered contacts. At the beginning of the campaign, one day was devoted to the examinations and another to treatment, but later it was decided to carry out both operations on the same day in order to avoid the possibility of diagnosed cases' escaping treatment.

Yaws is not the only public-health problem in the areas visited. The teams have discovered numerous cases of malaria, intestinal diseases, anaemia, and other ailments. This has been brought to the attention of UNICEF, which is assisting by providing drugs that can be given to patients by the yaws-control teams. This additional service has increased the number of persons who come for examinations for yaws and facilitates acceptance of the teams in rural areas.

PAM (procaine penicillin G with aluminium monostearate) is used for the treatment of all types of yaws. Up to October 1952, two injections, with an interval of three days between them, were given. The dosages were 4 ml for those over 10 years of age, 2 ml for those from 2 to 10 years, and 1 ml for those under 2 years. Later, in accordance with the recommendations of the WHO Expert Committee on Venereal Infections and Treponematoses at its fourth session, the same amounts were administered in a single injection. Since the end of 1953, the dose for patients up to 10 years of age has been increased, and the treatment schedule is as follows :

Age-group	*Cases of yaws*	*Contacts*
Over 10 years	4 ml	2 ml
2-10 years	3 ml	1.5 ml
Under 2 years	2 ml	1 ml

FIG. 1. ESTIMATED NUMBER OF CASES OF YAWS IN THAILAND AND STATUS OF THE CONTROL PROJECT IN NOVEMBER 1953

- *Survey in progress or planned*
- *Resurvey*
- *Survey and resurvey in progress*
- *Survey and resurvey completed*
- *Survey and control work in progress*

The following figures give an idea of the extent of the campaign activities from 1950 to June 1954 :

Population covered	4,145,907
Number of persons examined	3,585,292
Percentage of population examined	86.5
Number of persons treated	441,256
Percentage treated of population examined	12.3

The prevalence-rate of yaws varies considerably according to the place ; the highest prevalence-rate has been observed in the province of Surindr, where it ranges from 27% to 49% of the population examined.

Resurveys made in July 1952 and June 1954 have indicated a marked drop in the prevalence of yaws :

Population covered	1,850,295
Number of persons examined	1,649,764
Percentage of population examined	89.2
Number of persons treated	64,875
Percentage treated of population examined	3.9

In the province of Surindr, two research projects were carried out : one, a control study of treatment with benzathine penicillin G[1] in Gaeyai village, beginning in April 1953 ; and the other, a programme for the treatment of the whole population, cases of yaws receiving full treatment with PAM and the rest of the population being considered as contacts and being given half the dosage used for treatment. In the same area, a mass serological investigation was also conducted to obtain exact information on the prevalence of yaws.

RESULTS OF THE CAMPAIGN

Epidemiological and clinical observations

The distribution of yaws in Thailand is uneven and patchy ; even within the same province, where living conditions are more or less the same, the prevalence of yaws in different districts has been found to range from 4.3% to 17.1% of the population.

The onset of yaws occurs in most instances before the age of 15, and this epidemiological characteristic is the same in all areas, whatever the degree of infection.

The majority of those infected are in the latent stage of yaws and can be detected only by serological examination.

Yaws is a family disease, often transmitted from children to mother, or vice versa.

[1] *N,N'* dibenzylethylenediamine dipenicillin G

Assessment of the surveys

The coverage of the population has been adequate, reaching an average of 85% to 90% or more. However, the coverage of those infected has been less satisfactory. Often history and clinical examination fail to reveal cases which can be detected only by serological tests, and sometimes the teams lack means for making serological diagnosis. It is estimated that for these reasons about 20% of the infected population, in the latent stage of the disease, have remained undiagnosed and therefore untreated. This group is important as a reservoir of the disease, for clinical manifestations may appear at any time in the natural course of the disease. This is proved by the fact that resurvey has revealed a relatively large number of clinical cases of yaws, in addition to the new infections found, among persons who at the time of the original survey were found to be " non-infected ". This group of undetected cases which are apt to become contagious, in addition to those who were not examined and those who missed treatment, constitutes a reservoir of yaws, after a survey, which might be capable of producing in time a situation probably little different from that at the start of the campaign.

In order to simplify operations and make mass serological examinations unnecessary, treatment of the whole population of the more highly infected areas is being considered. This system is already under study (see page 351) and has been introduced on a limited basis to gain more experience of its practicability and efficacy.

At the request of the Government, the possibility of reducing the area of operations for resurvey in certain cases was studied : personnel, always in short supply and becoming more and more essential, would thus be available for expanding the campaign so as to cover larger areas in the initial surveys. The cases in which resurvey might be postponed have been defined in terms of the percentage of the population examined in the first survey, and of the percentage of cases of infectious yaws found among those examined.

Clinical and serological results

Whether PAM is administered in one or two injections, the results are the same : clinical cure or clinical improvement is noted in more than 90% of the cases treated. And the serological results are identical, regardless of whether the PAM is given in one or several injections.

A serological study followed up to the end of one year after treatment showed that reversal to seronegativity could be expected in only a small percentage of cases—11.4% in the series observed. The best serological response was seen in cases of primary lesions, in cases of palmar or plantar hyperkeratosis, or in latent cases. In Thailand, after the treatment with PAM as described, return to seronegativity was never observed when the original titre was above 1 : 64.

Results of treatment with benzathine penicillin G

The effects of treatment with benzathine penicillin G (see page 351), as evaluated six months after its administration, may be summarized as follows :[2]

(1) The by-effects—pain and swelling at the site of injection—disappeared rapidly, in two to five days.

(2) In cases of initial lesions and multiple papillomata, benzathine penicillin G, like PAM, gave complete healing of the lesions. It appeared, however, that the scars in patients treated with benzathine penicillin G were softer and smoother than those seen after PAM treatment.

[2] For further information on trials with benzathine penicillin G, see article by E. I. Grin and others in *Amer. J. Syph.* 1954, 38, 397.

(3) In patients with plantar or palmar hyperkeratoses, benzathine penicillin G (dose : 4 ml) resulted in the disappearance of all signs of hyperkeratosis, including pain and difficulties in walking. In a corresponding group of hyperkeratosis cases in the same hamlet treated with PAM (dose : 6 ml), the results were not so well marked, and a certain number of patients had to be re-treated. Benzathine penicillin G (dose : 2 ml) was used for the re-treatment.

(4) In cases serologically controlled, no appreciable difference could be observed in the results given by benzathine penicillin G and those given by PAM.

Reports of Expert Groups

ONCHOCERCIASIS

Epidemiological surveys of onchocerciasis in Africa and in the Americas have shown that *Onchocerca* infections afflict a high proportion of the population of certain regions. Infection-rates up to 80%-100% have been recorded in both continents.

The social significance of the disease in many areas is considerable because of the frequent ocular complications and their effect on the working capacity of those suffering therefrom. It has been demonstrated that in some places in the Americas blindness may reach the proportions of 0.45% to 3.3% of the total population—even 15.6% in Guatemala, in 1933. The economic consequences may be expressed in terms of abandonment of land and villages, or of impeding the carrying-out of plans for economic developments, such as the establishment of power plants. In certain districts of Mexico and Guatemala, coffee planters have been obliged to give special attention to the disease and often to allocate considerable funds for the treatment of their workers.

A general review of present knowledge of *Onchocerca* infections and their control is given in the first report of the WHO Expert Committee on Onchocerciasis.[1] This report also makes a valuable contribution to the study and control of the disease by setting forth, for the first time, standardized techniques to be followed in conducting epidemiological surveys. Standardization of survey procedures would make possible the comparison of results of investigations undertaken in different parts of the world at different times and would greatly facilitate the evaluation of control measures.

SYMPTOMS AND PATHOLOGY

The report begins with a description of the symptoms and pathology of onchocerciasis, pointing out differences in the disease observed in Africa and in the Americas. Among these differences are the presence of pruritus as a common symptom in Africa and its rarity in America; the frequency of nodules on the head and trunk in Guatemala and Mexico, in contrast with their more common appearance on the pelvic girdle and the lower limbs in Africa; a greater number of microfilariae in lymphatic glands in African patients than in American patients; and the observation of choroido-retinitis and primary optic atrophy in Africa although it has not been seen in America by many ophthalmologists with experience in onchocerciasis.

Most important are the ocular symptoms, which include frequent conjunctivitis and

[1] *Wld Hlth Org. techn. Rep. Ser.* 1954, **87**, 37 pages. Price : 1/9, $0.25, or Sw. fr. 1.—. Published in English and in French.

filarial limbitis, superficial subepithelial punctate keratitis (also frequent), interstitial keratitis (less frequent), and a characteristic iridocyclitis, which is often seen and which is the chief cause of blindness. The evolution of the lesions tends to be slow, with a gradual deterioration of the eyesight in untreated patients over a period of years.

The causation of all the symptoms of the disease depends largely on repeated heavy infections with *Onchocerca*, and symptoms are most common and most severe in places where infection is heaviest.

VECTORS

The chief vectors of *Onchocerca* are *Simulium ochraceum* in Mexico and in Guatemala, and *S. damnosum* in Africa. Other vectors of some importance in parts of East Africa are those belonging to the species complex *S. naevei*. The report gives considerable information on the bionomics of these vectors. Thus far, there is no evidence of an animal reservoir of onchocerciasis in either the Americas or in Africa.

EPIDEMIOLOGICAL SURVEYS

There is a need for epidemiological surveys of onchocerciasis, and the report suggests certain methods for the standardization of such surveys.

Diagnosis

Diagnosis should include careful palpation of the whole body for nodules and biopsy or scarification of the skin for the detection of microfilariae. Particular attention should be paid to the diagnosis and evaluation of ocular symptoms, which present a difficult problem during epidemiological surveys. Trained, non-specialized personnel may do the preliminary work, such as determination of visual acuity and examination of the anterior segment of the bulb with hand lens; but the examination should be completed by a specialist with the aid of an ophthalmoscope. The following points are listed as being most important in the diagnosis :

1. Conjunctivitis and limbitis of filarial origin should not be confused with trachomatous pannus or with vernal conjunctivitis.

2. Keratitis should be distinguished from kerato-conjunctivitis.

3. Iridocyclitis can easily be recognized in some cases by the deformation of the pupil and its downward displacement, synechia and occlusion of the pupil, atrophy of the iris, etc.

4. Choroido-retinitis can be recognized by the extension and the great variety of its lesions (atrophic and pigmented lesions, exudative lesions, oedema of the retina, and others).

5. Optic atrophy in Africa is characterized in the majority of cases by perivascular sheaths which are often very marked and which transform the nerve into a cord of fibrous aspect.

Another diagnostic procedure is the detection of microfilariae in the eye. Microfilariae may be found, by biomicroscope or electric ophthalmoscope, in the cornea, the anterior chamber, and the vitreous. Microscopic examination of the aqueous humour and of fragments of the conjunctiva may be of assistance in the diagnosis.

While cutaneous reactions using filarial antigens are not recommended for epidemiological surveys (because of the non-specificity of the tests), systemic allergic reactions may be useful as diagnostic procedures. Fifty milligrammes of diethylcarbamazine are administered orally, and the reaction is considered positive if a patient suffers pruritus or shows allergic reactions of the skin, conjunctiva, or lymphatic glands a short time after taking the drug.

Collection and evaluation of data

The report outlines the data which should be collected and evaluated in epidemiological surveys of onchocerciasis, with regard both to man and to the vectors of the disease. It is suggested that the data on cases of the disease be classified in the following age-

groups : 1-2, 3-4, 5-9, 10-15, 16-30, 31-50, and over 50.

CONTROL

Control of onchocerciasis is reviewed under two headings : therapy, and vector control.

Therapy

" Denodulization ", which does not seem to reduce the incidence of the disease but which does reduce the incidence of eye lesions and blindness, now appears to be the most practical measure for the treatment of individuals, and should be employed wherever possible both for individual cases and in mass treatment campaigns.

The recommended drug therapy for individual patients is the use of diethylcarbamazine, in a dosage of 2 mg per kilo of body-weight, three times a day, for a period of two or three weeks. In rural areas, the dosage may consist of 10 mg per kilo, in a single daily dose, for one week. Although allergic reactions follow the administration of this drug, they should not be considered a contra-indication to its use. Repetition of treatment every six months gives good results, and allergic reactions steadily decrease. However, the use of diethylcarbamazine is not recommended for mass treatment, because of the allergic reactions and because it does not prevent reappearance of microfilariae.

Suramin sodium, another drug sometimes used for treating onchocerciasis, has been considered by the experts as too dangerous to be recommended for use in mass treatment, and is recommended for individual treatment with reserve, since it should be employed only under careful and constant medical supervision.

Vector control

No method of control of simuliids is universally applicable, the choice of chemical, biological, and mechanical methods depending on local conditions. A detailed entomological survey should be made, the water-courses of the area mapped, and a study of the aquatic environment in relation to breeding of the vector undertaken. DDT and other insecticides have been used successfully in the control of *Simulium* breeding. For total eradication, all streams and rivers of an area must be treated within a period of about ten days in order to prevent reinfestation from outside, the process being repeated until the maximum lifetime of a female fly has expired. In certain areas of Africa, good results have been obtained by the use of imagocides dispensed from aircraft. Other control methods are the use of biological predators and parasites against the aquatic stages of the simuliids, and water control—through mechanical means such as dams, syphons, and concrete channels —to kill the early stages of the *Simulium* or to modify the breeding conditions.

Recommended control methods

More study is needed on all of these control methods. In the present stage of knowledge, two courses of action are recommended : the control of the vector, wherever this is feasible, and the systematic excision of nodules from patients in areas of high endemicity. In some areas it may be advisable to use a combination of the different control methods available.

RESEARCH

In addition to detailed surveys for determining the geographical distribution of onchocerciasis in Africa and in America and for studying the epidemiological features of the disease on the two continents, there is a great need for research on problems relative to the human host, the vector, and the parasite. The WHO report suggests subjects for such research, thus pointing the way to further advances in knowledge of the disease as well as summarizing what is now known of its nature, cause, and control.

BILHARZIA SNAIL VECTORS

Identification and Classification

Equatorial and South Africa

One of the most difficult problems in the study of bilharziasis is the identification of the snail vectors of the disease. There is much confusion regarding the status of many species of snail vectors and a need to establish criteria to enable the field worker to make a primary identification and the malacologist to reach a definite identification and classification. The molluscan family Planorbidae, to which the snail vectors of *Schistosoma* belong, is large ; and numbers of species have evolved, with representatives present throughout the world. Most of these species lack easily recognizable characters or ornamentation that would aid in identification. In addition, many of the descriptions of species have been based only on shell characters, no information concerning the anatomy of the animal being given.

A recent WHO technical report [1] attempts to throw light on this problem. The work of a special WHO study-group, the report sets forth principles of classification and criteria for the identification of snail vectors of bilharziasis, particularly for African Planorbidae ; specifies the data which should accompany all snail collections sent for identification ; and describes acceptable methods for the preservation of vector molluscs. It contains a tentative list of various African species of *Biomphalaria* which may be helpful to field workers, although the classification given is not to be considered as final.

The report calls attention to the fact that much research remains to be done in medical and veterinary malacology. Most important are the contributions of field workers, who should send material to malacologists for study. Assistance in the compilation of a file of the original descriptions of molluscs which are intermediate hosts of bilharziasis, and of their close relatives, is requested, priority to be accorded to study of Planorbidae *(Biomphalaria* and *Bulinus)* from Africa, the Mediterranean region, and South America, in that order. The descriptions should be accompanied by photographs of the type species.

Information on seasonal infection of snail hosts is also sought. Other subjects on which research is essential are outlined in the report. It is emphasized that further advances in the study of snail vectors will require the collaboration of malacologists, parasitologists, ecologists, and limnologists, and close co-operation between field workers, national research institutes, and international reference institutes.

[1] *Wld Hlth Org. techn. Rep. Ser.* 1954, 90, 22 pages. Price : 1/9, $0.25, or Sw. fr. 1.—. Published in English and in French.

World Health Day : 7 April 1955

Announcement has been made, in a circular letter from the Director-General to Member States, of plans for the observance of World Health Day in 1955. The theme is to be " Clean water means better health ", a subject which emphasizes WHO's role in improving environmental sanitation and which calls attention to a problem of concern to health authorities in many countries.

World Health Day is " primarily an occasion for national activity in favour of national health programmes, [its] international character . . . serving principally to strengthen its national appeal ". It is hoped that all governments will organize an even wider observance of World Health Day in 1955 than in previous years.

Notes and News

Regional Committee for Africa

The fourth session of the WHO Regional Committee for Africa was held in Leopoldville, Belgian Congo, from 20 to 25 September 1954. The session was attended by representatives of nine Member States and Associate Members,[1] who reviewed the report of the Regional Director, Dr. F. J. C. Cambournac, on activities in the Region and discussed the programme and budget for the years 1955 and 1956.

During the period covered by the Regional Director's report, a number of projects for the control of communicable diseases, malaria and yaws in particular, were initiated or planned. Nutrition, maternal and child health, and environmental sanitation also received attention. Much of the work was being undertaken in co-operation with UNICEF and other agencies, especially the Commission for Technical Co-operation in Africa South of the Sahara (CCTA), in assisting the governments concerned.

Among the decisions of the committee was one relating to strengthening the collaboration between WHO and the CCTA. A warm vote of thanks was extended to the French Government for its generosity in offering to arrange the installation of the Regional Office and of accommodation for the personnel in the Cité du D'joué, which is situated on a hill overlooking the Congo River a few miles from Brazzaville.

Technical discussions on the subject of public-health problems in rural areas in Africa were held in conjunction with the committee's meeting. It was decided that the topic of similar discussions at the fifth session would be " The health problems of the pre-school child in Africa and the role of the public-health nurse in the solution of these problems ".

Chairman of the fourth session of the Regional Committee for Africa was Colonel A. C. Thomas, Director-General of Medical Services, Belgian Congo. Dr. R. M. Morris (Federation of Rhodesia and Nyasaland) and Dr. J. B. Titus (Liberia) served as Vice-Chairmen.

The next session of the committee is to take place in Tananarive, Madagascar, and the 1956 session in Luanda, Angola.

Regional Committee for the Eastern Mediterranean, Subcommittee A

In late September 1954, a committee, designated as Subcommittee A, composed of all but one of the countries of the Eastern Mediterranean Region [2] met, for the first time since 1950, to discuss regional activities and to consider the programme and budget proposed by the Regional Director.

The report of the Regional Director which was reviewed by the subcommittee covered four years of activity in the Region and recorded notable progress: when the Regional Committee for the Eastern Mediterranean met in Istanbul in 1950, the emphasis was on surveys of health needs, and only six projects were operating ; since then, 40 projects have been completed, and there are more than 57 currently in operation, with 12 more expected to be under way very soon. Field staff has increased accordingly : at the end of 1951, it numbered 49, and by the fall of 1954, it was 131, the largest group (44) working in tuberculosis control. The report emphasized the value of the experience and

[1] Members : Belgium, France, Liberia, Portugal, Spain, United Kingdom of Great Britain and Northern Ireland, and Union of South Africa ; Associate Members : Federation of Rhodesia and Nyasaland, and Spanish Protectorate Zone in Morocco.

[2] Egypt, Ethiopia, France, Iran, Iraq, Italy, Jordan, Lebanon, Libya, Pakistan, Saudi Arabia, Syria, the United Kingdom of Great Britain and Northern Ireland, and Yemen.

information which had been gained in the period under review and called attention to continuing needs, especially the need for trained health personnel.

The subcommittee elected Dr. Mohamed H. Abul Ela, Under-Secretary of State, Ministry of Public Health, Egypt, as Chairman, and Dr. Sabih Al-Wahbi (Iraq) and Dr. A. T. Diba (Iran) as Vice-Chairmen. The representatives of the various countries commented on, and approved, the Regional Director's report and supplied additional information on the activities within their own countries.

A budget of $4,042,030 (including funds from Technical Assistance, UNICEF, and other sources) was considered for work in 15 countries. This budget is to cover the expenses of a programme which includes control of malaria and other insect-borne diseases, tuberculosis, bilharziasis, trachoma, and venereal diseases ; improvement of public-health, nursing, occupational health, and mental health services ; the health care of mothers and children ; nutrition ; environmental sanitation ; and education and training activities, including the award of fellowships. In the discussions of the programme, particular attention was given to environmental sanitation and to smallpox control. The former was stated to be one of the first essentials in countries of the Region, and the opinion was expressed that without improvement of environmental sanitation most other public-health measures would be to no avail. With regard to smallpox, WHO was requested to provide data on dry vaccines and to help in the preparation of national and inter-country smallpox-vaccination campaigns. A representative of Egypt reported that, thanks to the application of modern control methods, the incidence of smallpox in his country had dropped from 1,857 in 1945 to a complete absence of the disease since 1952.

Governments of the Region were asked to look far ahead in planning their health programmes and to co-ordinate the work of all the ministries whose activities have a bearing on health and general welfare. It was recommended that programmes cover five to ten years so that the best use might be made of international funds and technical aid.

Subcommittee B has not yet been able to meet.

Regional Committee for the Americas

The Fourteenth Pan American Sanitary Conference was held in Santiago, Chile, from 7 to 22 October. The Conference, which meets every four years, served as the sixth session of the WHO Regional Committee for the Americas.

Represented at the Conference were 20 Member States and three European governments with territories in the Americas.[3] For the first time, all presented four-year reports, including available health statistics, on public health conditions and on the progress achieved in their territories since the 1950 meeting. Two reports of the Director, Dr. F. L. Soper, covered 1953 and also the four-year period. The latter revealed a considerable expansion of public-health work in the Region: at the beginning of 1950, the Pan American Sanitary Bureau (Regional Office for the Americas) was assisting in ten projects; by the end of 1953, more than one hundred health programmes were receiving PASB aid. It also showed a broadening of the scope of public-health activities in the Americas to a point where hemisphere-wide eradication projects were being undertaken.

The Conference was presided over by Dr. Sergio Altamirano, Minister of Public Health and Welfare of Chile ; Dr. W. Palmer Dearing (USA) and Dr. O. Vargas Méndez (Costa Rica) were Vice-Chairmen. The Conference re-elected Dr. Soper as Director of the Pan American Sanitary Bureau, to serve his third four-year term, beginning 1 February 1955.

A programme embracing nearly one hundred projects and a budget of $2,100,000 were approved for 1955, and a similar budget

[3] Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, France, Guatemala, Haiti, Mexico, Netherlands, Nicaragua, Panama, Paraguay, Peru, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, and Venezuela.

for 1956 endorsed. A WHO regional budget of $1,158,255 was approved for transmission to the Director-General for his consideration in preparing the WHO budget for 1956. Particular attention was given to, and special funds authorized for, combating malaria and small pox; and Member Governments were urged to develop curative and preventive programmes against the treponematoses and to make special efforts to improve health statistics.

Technical discussions were held during the course of the Conference on the topics : " Methods for improving the reliability of raw statistical data required for health programmes ", " Control of infant diarrhoeas in the light of recent scientific progress ", and " Application of health education methods in rural areas in Latin America ". Two subjects were selected for discussions to take place at the next meeting of the PASO Directing Council (seventh meeting of the WHO Regional Committee for the Americas), to be held in the autumn of 1955 in Washington, D.C.—" Methods of improving the education of public-health personnel ", and " Medical care in rural areas ".

The Fifteenth Pan American Sanitary Conference will be held in San Juan, Puerto Rico, in 1958.

Disease-Control Project in Paraguay

WHO aid is being given in a demonstration project for the control of hookworm (ancylostomiasis) and smallpox in the Asunción-Villarrica area of Paraguay—an area comprising only 8% of the total land area of the country but containing 40% of the population. Preliminary studies indicated that from 65% to 80% of the people of this area were infected with hookworm.

One of the important aspects of this project is the improvement of environmental sanitation : at the end of less than two years' work, 81% of the dwellings have been provided with adequate excreta disposal, as compared with 55% before. Other activities include smallpox vaccination, the administration of antihelminthic drugs, and health education of the people.

Environmental Sanitation Survey in Taiwan

A WHO consultant, Mr. W. H. Weir (USA), has been sent to make a preliminary survey and to recommend further action in an effort to improve environmental sanitation in Taiwan. The Government is being assisted in this environmental sanitation programme by the Joint Commission on Rural Reconstruction and the Foreign Operations Administration of the USA as well as by WHO. The Organization plans to send two public-health engineers to participate in the work in 1955.

Mr. Weir is Director of Water Pollution Control of the Georgia State Department of Health and served in the Sanitary Corps of the United States Army during the Second World War. He expects to be in Taiwan three months.

Middle Eastern Countries Join to Combat Sylvatic Plague

Iran, Iraq, Syria, and Turkey, with aid from WHO, are joining forces to try to control endemic sylvatic plague.

As a first step, WHO sponsored a conference, which was held in Teheran from 20 October to 1 November. This conference afforded an opportunity for participants from the above-mentioned countries to exchange information and to explore the possibilities of a WHO-co-ordinated research and control programme. They were particularly concerned with studying the situation in Kurdistan, where sylvatic plague is endemic and where field activities are in progress.

Control of sylvatic plague has thus far proved difficult in endemic areas, which exist in California (USA), parts of South America, and most of Africa and Asia. Many species of wild rodents—e.g., mice, rats, and wild squirrels—are potential carriers of the disease. The danger lies in the possibility that human beings infected in rural endemic areas may carry sylvatic plague to urban centres, where the rodent population may become infected and start an epidemic.

Training Courses in Statistics : Kabul and Beirut

A six-week training course which was given in Kabul, Afghanistan, during September and October, enabled 38 statisticians from that country to receive intensive instruction in statistical methodology and analytical techniques and practices in vital and health statistics, and to become familiar with the aims, programmes, and statistical publications of various international agencies. The course was arranged by the Government of Afghanistan and WHO, with the collaboration of the United Nations.

The training, which was of a practical nature, included a field survey carried out in Kabul City by the participants in the course. This survey, based on modern sampling techniques and a house-to-house survey, yielded much valuable information concerning the composition of the city's population, the amount and types of illness, and the birth- and death-rates. It was the first survey of its kind in Afghanistan.

The training course is expected to give new impetus to the development of Afghanistan's statistical system and to further the objective of international comparability of vital and health statistics.

In Beirut, Lebanon, the International Statistical Education Centre, which was opened in February 1953 under the auspices of UNESCO, began its third term. The Centre, which is under the direction of Mr. Faiz El Khuri, former Regional Statistician for the WHO Office for the Eastern Mediterranean, has already trained 72 statistical officers from Egypt, Iran, Iraq, Jordan, Libya, Sudan, Syria, and Turkey.

Nursing Seminar in Istanbul

From 17 to 30 October, doctors and nurses from eleven countries [4] assembled in Istanbul for a WHO Seminar on Team-work in Nursing Services. This seminar was organized by the WHO Regional Office for Europe in collaboration with the Government of Turkey.

Discussions at the seminar were centred largely on the subject of the relationship between hospital and public-health nursing services, with the intention of elucidating the problems of nursing relevant to the two services, of showing the interrelation of their work, and of considering principles and practices of staff education and teamwork. Specifically, attention was focused on the practical aspects of four major topics : (1) the need for nursing care of the individual, the family, and the community; (2) administration—factors involved in hospital and in public-health services and the relation between the two; (3) needs, methods, and opportunities for improvement of staff education; and (4) team-work—what it is and how it can be achieved.

By bringing together doctors and nurses associated with public-health agencies and with hospitals, the seminar helped to define and to clarify the nursing needs of each of the two types of service and to show how closer co-operation between the two services might aid in utilizing to better advantage the existing resources in nursing personnel.

As in other WHO seminars, the emphasis was on active participation of all those present, through small discussion groups, panel sessions, and other means. In addition to attending lectures and taking part in discussions, the participants visited various health centres, hospitals, and training institutions in Istanbul.

Meeting on Alcoholism

In October, the WHO Expert Committees on Mental Health and on Alcohol met in a joint session to consider, in particular, variation in drinking habits in different countries and the public-health problems involved.

The chief distinction made was between countries in which beer and wine are the most common alcoholic beverages and those in which distilled spirits are more commonly consumed. While alcoholism is

[4] Austria, Germany, Greece, Italy, Morocco, Portugal, Spain, Switzerland, Tunisia, Turkey, and Yugoslavia.

not necessarily less frequent in the former than in the latter, the nature of the alcoholism which results from each of these types of drinking varies accordingly : in the case of wine- or beer-drinking, there is less overt drunkenness, but excessive consumption can lead to dependence upon alcohol, i.e., an inability to stop drinking, and to serious physical disturbances; when distilled spirits are consumed to excess, the effects are quite different, and there appear the phenomena of " loss of control " (inability to regulate the amount of alcohol ingested) and the so-called " blackout " (a type of amnesia).

From the public-health viewpoint, the heavy drinker is a problem regardless of whether his excessive consumption of alcohol is in the form of beer or wine or of distilled spirits : not only does he himself suffer physical deterioration, but also he is apt to cause industrial or traffic accidents, be more prone to criminal behaviour and more exposed to venereal disease, and be responsible for numerous social and psychological problems within his circle of family and friends. The group recognized also the seriousness of problems arising from occasional excessive drinking which cannot be considered by any means as alcoholism.

The report on the joint committee meeting, if its publication is authorized by the Executive Board, will appear in the *Technical Report Series.*

This meeting was attended by Dr. H. Duchêne, Médecin-Chef du Service de Prophylaxie mentale, Département de la Seine, Paris; Dr. H. Isbell, Director of Research, US Public Health Service Hospital, Lexington, Kentucky, USA; Dr. G. A. R. Lundquist, Chief Physician, Långbro Hospital, Stockholm; Mr. L. D. MacLeod, Burden Neurological Institute, Bristol, England; Dr. J. Mardones (Chairman), Professor of Pharmacology, Medical Faculty, University of Chile, Santiago; Professor J. E. Staehelin, University Psychiatric Clinic, Basle, Switzerland; and Dr. H. M. Tiebout, Greenwich, Connecticut, USA. The Secretariat was represented by Dr. G. R. Hargreaves, Chief, Mental Health Section; Professor E. M. Jellinek, Consultant on Alcoholism; and Dr. P. O. Wolff, former Chief, Addiction-Producing Drugs Section.

Fifth Session of Insecticides Committee

The Expert Committee on Insecticides met for its fifth session in Maracay, Venezuela, from 2 to 11 September 1954. The Instituto de Malariologia de Venezuela played host to the committee for this meeting.

The chief subject of the committee's discussions was the chemistry of insecticides, with the aim of amending previously established specifications and suggesting specifications for certain pesticides which are gaining in importance, and for dusting powders, rodenticides, and molluscicides. Studies made during the past two years were reviewed ; and particular attention was devoted to investigations on the development of an adequate test for the determination of the suspensibility of water-dispersible powders, the effect of tropical storage on insecticides, suspensibility, the sorption of insecticides in mudwall surfaces, the relationship of particle size of insecticides to their biological effectiveness, and synergists in insecticide preparations.

Dr. R. A. E. Galley, Director, Colonial Products Laboratory, London, United Kingdom of Great Britain and Northern Ireland, was elected Chairman of the session, and Dr. H. L. Haller (USA) and Dr. H. Mazzari (Venezuela), Vice-Chairmen. Other members were Dr. A. W. A. Brown (Canada), Dr. R. Pal (India), and Dr. J. Treboux (Switzerland). Members of the Secretariat who were present were Mr. J. W. Wright (Secretary of the committee), and Mr. J. N. Lanoix, both of the Division of Environmental Sanitation. The committee's report, if publication is authorized by the Executive Board, will appear in 1955 in the *Technical Report Series.*

Meeting of Joint FAO/WHO Expert Committee on Nutrition

At its fourth session, held in Geneva from 26 October to 2 November, the Joint FAO/WHO Expert Committee on Nutrition

considered a number of problems which had been recommended for study at its second session, in 1951. These included anthropometry applied to nutrition and the importance of diet in relation to the incidence of degenerate diseases. Other subjects on the agenda were (1) calorie requirements, concerning which the discussions were based on an expert committee (FAO) report published in 1949 ; (2) chemical additives to food, a problem to which the Sixth World Health Assembly and the Executive Board had drawn attention ; and (3) pellagra and goitre, both of which have been under study by WHO in recent years. In addition to dealing with problems such as these, the committee reviewed the nutrition programmes of WHO and FAO during the period 1951-54 and made suggestions for future work.

The members of the committee were : Dr. J. Bengoa (Venezuela), Professor W. J. Darby (USA), Professor M. J. L. Dols (Netherlands), Professor A. Keys (USA), Professor B. S. Platt (Chairman) (United Kingdom of Great Britain and Northern Ireland), Dr. M. V. Radhakrishna Rao (India), Dr. J. Salcedo, jr. (Philippines), Dr. H. K. Stiebeling (USA), Professeur E. F. Terroine (France), and Dr. N. Wright (United Kingdom of Great Britain and Northern Ireland). Secretaries for this session were Dr. W. R. Aykroyd, Director of the Nutrition Division of FAO, and Dr. R. C. Burgess, Chief of the Nutrition Section of WHO.

The committee's report, if publication is authorized by the WHO Executive Board, will appear in the WHO *Technical Report Series*.

Mecca Pilgrimage

A recent supplement to the *Weekly Epidemiological Record* (1954, No. 41, Supp. 3) contains a summary report on the 1953 Mecca Pilgrimage (Year of the Hegira 1372). Information concerning the health conditions of pilgrims is given, by country of origin, for the journey to the Hedjaz, the arrival and scjourn in the Hedjaz, the Arafat and Mena days, and the return journey. There were no epidemics and no cases of quarantinable diseases among the pilgrims or among the inhabitants of the region, and the Ministry of Health of Saudi Arabia declared the Pilgrimage free from infection. A comparative statement of the number of returning pilgrims who landed at El Tor, where there is a quarantine station, during the 1951, 1952, and 1953 Pilgrimage seasons indicates an increase, the totals being 28,057, 36,849, and 39,129, respectively.

The 1954 Pilgrimage (Year of the Hegira 1373) has, according to reports from the Eastern Mediterranean Region, also been declared free from infection. Improved health facilities and the application of modern prophylaxis have greatly changed the health situation of the Mecca pilgrims and of the inhabitants of the region, where, between 1831 and 1912, forty serious epidemics of plague, dysentery, typhoid, and cholera were recorded during Pilgrimage seasons.

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